

**REMARKS**

The specification and claims 1 and 8-12 have been amended to correct editorial problems. The formula of the quaternary metallic oxide of the invention,  $Ba_{1-x}M^1_xTi_{1-y}M^2_yO_m$ , reads on binary or tertiary metallic oxides when x or/and y are zero. Therefore, the related paragraphs of the specification and the claims have been amended to exclude binary or tertiary metallic oxides, to be consistent with the disclosure that the invention relates to a quaternary metallic oxide.

Claims 1-18 are all the claims pending in the application.

Support for the amendments can be found throughout the specification. For example, in the “Summary of the Invention”, page 3, lines 9-10 read: “The metal oxide in the present dielectric material composition has a structure of  $BM^1TM^2O$ , which is a quaternary metallic oxide.” In the “Detailed Description of the Invention”, page 5, lines 28-30 read: “The above described concept is utilized in the present invention to find a quaternary metallic oxide for improving the dielectric properties.” Further, all of the working examples (i.e., Examples 1-3) are directed to quaternary metallic oxides.

Applicants therefore submit that no new matter has been added.

**Response to rejections of claims 1-18 under 35 U.S.C. § 102(b)**

Claims 1-18 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Wainer et al (2,443,211), Drozdyk (5,780,375), Mateika et al (5,790,367), Chu et al (6,646,080), and Ogi et al (5,645,634). Applicants respectfully traverse the rejections made by the Examiner for the reasons discussed below.

Amended claim 1 recites a quaternary metal oxide having the formula  $\text{BaM}^1\text{TiM}^2\text{O}$ . This unique feature is to adjust the dielectric properties of the metal oxide by the introduction of other elements into a tertiary metallic oxide, such as BST. See page 3, lines 19-25; page 5, lines 1-3; and page 5, lines 28-30 of the present specification. The dielectric material composition of the claimed invention possesses both high dielectric constant and low dielectric loss. In preferred embodiments, the dielectric constant may be above 950, and the dielectric loss may be less than 0.001 at high frequency, and therefore well suited for high frequency operation. See page 6, lines 13-20 of the specification and claim 18.

Applicants respectfully submit that none of the cited references teach or suggest the quaternary metallic oxide of claim 1. For example, as stated by the Examiner, Wainer et al teach a tertiary metallic oxide of  $\text{BaO-SrO-TiO}_2$ . Likewise, Mateika et al and Ogi et al teach a tertiary metallic oxide of  $\text{BaSrTiO}_3$ , and Drozdyk and Chu et al teach a binary metallic oxide of  $\text{BaTiO}_3$ . Accordingly, Applicants submit that the quaternary metallic oxide of amended claim 1 is not anticipated by the cited references.

In addition, since the cited references are all directed to binary or tertiary metallic oxides, there is no teaching that would have suggested to an artisan that a quaternary metallic oxide could or should be prepared. Furthermore, the advantages achieved by the present invention are unappreciated and unexpected from the teachings of the cited references. The introduction of the fourth metal ion results in distortion of the structure, giving a high dielectric constant up to 1000 and a low dielectric loss down to 0.005. See page 5, line 11 to page 6, line 20 of the present

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 10/606,859  
Attorney Docket No. Q76311

specification. Accordingly, Applicants respectfully submit that the invention is not obvious over the cited references.

As none of the cited references, when taken alone or in combination, teaches or suggests the features as set forth in amended claim 1, it is Applicants' belief that amended claim 1 is allowable over the cited references. Insofar as claims 2-18 depend from claim 1, Applicants submit that these claims are also allowable at least by virtue of their dependency.

Allowance is respectfully requested.

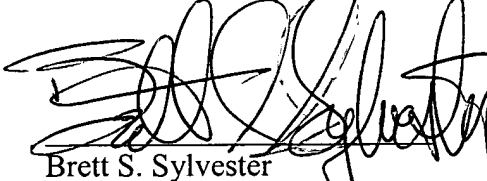
SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Respectfully submitted,



Brett S. Sylvester  
Registration No. 32,765

Date: February 8, 2005